

2025 Rhode Island Aerial Infrared Deer Survey Executive Summary



**Rhode Island Department of
Environmental Management**

Division of Fish & Wildlife

University of Rhode Island



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Acknowledgments

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This research would not have been possible without the expertise, effort, and dedication of the URI staff, who conducted all aspects of the project's planning, data collection, and analysis. Their technical knowledge and commitment were essential to the success of the work and form the foundation of the findings presented here. While this report was prepared by DFW, the substance and quality of the project are a direct result of URI staff contributions, for which sincere appreciation is extended.

This report is a summary of the results from URI's data collection and analysis. To read the full report from URI, visit <https://dem.ri.gov/sites/g/files/xkgbur861/files/2026-01/deer-aerial-survey-report-2025.pdf>.



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Cover photo: Dean Birch



Introduction

White-tailed deer are an important part of Rhode Island's landscape. They affect forests, farms, road safety, and local communities while remaining an important natural resource. To manage deer responsibly, wildlife biologists need reliable information about where deer are found and how their numbers vary across the state.

Rhode Island deer monitoring has included data from hunter harvest, deer vehicle collisions, and nuisance deer reports. These data provide valuable long-term trends, but they do not always show how deer are distributed across different parts of the state in a single moment. To help fill that gap, the Rhode Island Department of Environmental Management (DEM) Division of Fish and Wildlife (DFW) worked with researchers at the University of Rhode Island (URI) to conduct an aerial infrared survey during the winter of 2025.

The main goal of this survey was not to produce a perfect count of every deer in the state. Instead, the goal was to better understand how deer are distributed across Rhode Island and to see if the current hunting season structure should be modified to reduce deer abundance in certain Deer Management Zones (DMZ).

How the Survey Worked

During February and March of 2025, a helicopter flew over Rhode Island at night along planned flight paths spaced 1 mile apart covering roughly 8% of the land area of Rhode Island. In addition, Colt State Park, Dutch Island, and Patience Island were surveyed in their entirety (Figure 1). An infrared camera was mounted to the helicopter and took one image every second (Figure 2). Because deer are warm-bodied animals, they can sometimes be detected as bright shapes against cooler ground when conditions are right.

Researchers at URI reviewed thousands of infrared images and grouped them into short image sequences to avoid counting the same deer more than once. Each sequence was given an estimated number of deer along with a confidence rating that reflected how clear the image was. Results from the areas surveyed were extrapolated to the rest of the state.

It is important to understand that aerial infrared surveys have limitations, especially in Rhode Island. Weather conditions during the 2025 survey were warmer than ideal. Warm days cause the ground, rocks, vegetation, and water to retain heat, which makes it harder to distinguish deer from their surroundings. In many images, deer did not stand out clearly from the background. In addition, in areas with coniferous trees (pine trees), the camera can not see through them like they do with deciduous trees (oak trees) that drop their leaves in the winter. Therefore, it is likely that some deer were not counted as they were not visible to the camera. This is why we assume our estimate is a minimum count.

In a perfect world, surveys like this would be conducted with snow cover and cold overnight temperatures like we saw in January of 2026, but unpredictable snow events here in Rhode Island forced us to complete the survey regardless of snow cover.

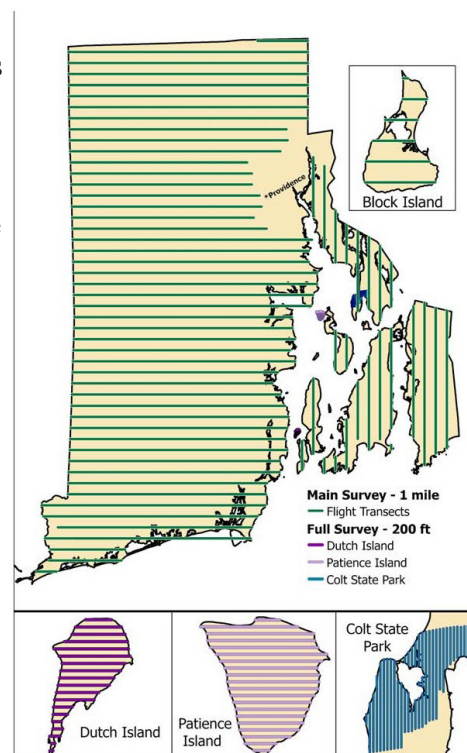


Figure 1: Flight path map

Results

Even with these challenges, the survey produced useful abundance estimates (Table 1) and information about where deer tend to be more common and where they are less common. In addition, these results closely align with abundance estimates from previous analyses such as a statistical population reconstruction from harvest data, and abundance estimates from trail camera surveys, giving us confidence in the survey results.

The survey results showed that deer are not evenly distributed across Rhode Island. Some regions, such as parts of Tiverton and Little Compton, appeared to have higher deer densities, while areas like Barrington and East Providence showed lower densities (Figures 3 & 4).

Based on the survey results, we estimate there to be a minimum of ~16,000 deer in the state, which is ~16 deer per square mile. This would fall within biological carry capacity of 10-20 deer per square mile. However, this survey was done at a time of year when the deer population is at its lowest, right after hunting season and when the bulk of deer vehicle collisions have occurred and before fawning time. Based on our Community Science Survey over the last 5 years, ~53% of deer are adult females. If this proportion holds true statewide, it would equate to roughly 8,000 adult females. Assuming each produces one fawn, the population could increase by an additional 8,000 deer in the coming spring, resulting in an estimated total of 24,000 deer statewide—about 24 deer per square mile. This underscores the importance of survey timing, as population estimates can be significantly skewed depending on when surveys are conducted.

Colt State Park, Patience Island, and Dutch Island were surveyed entirely as the helicopter flew paths that allowed the camera images to overlap and survey the entire area. Colt State Park has been known to have an overabundant deer population coupled with wildlife feeding issues. Patience Island is currently a breeding colony for New England Cottontails, whereas plans are in place to establish an additional breeding colony on Dutch Island. Knowing the deer abundance on both islands is critical. Colt State Park had an estimate of 62 deer, or 70 per square mile, Patience Island had an estimate of 21 deer, or 56 per square mile, and Dutch Island had an estimate of 16 deer, or 94 per square mile. All three are much higher than the mainland average as there is no hunting at Colt State Park and Dutch Island, and minimal hunting pressure on Patience Island due to access issues.

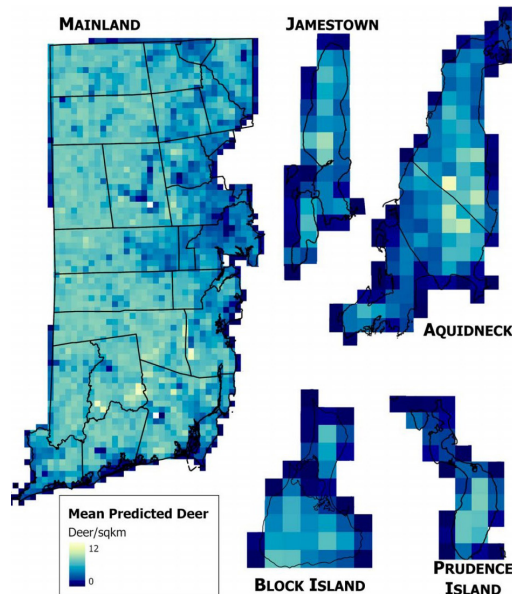


Figure 3: Mainland, Jamestown, Block Island, Aquidneck Island, and Prudence Island

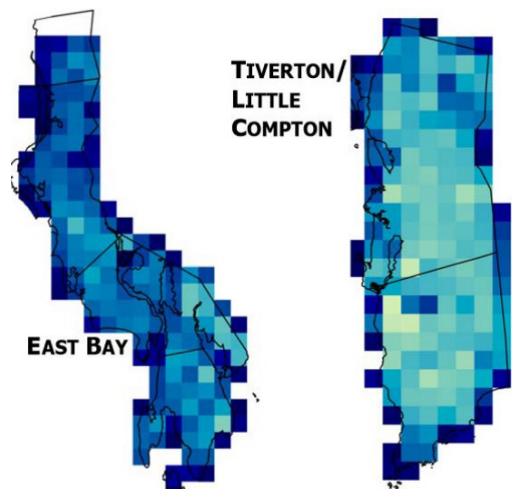


Figure 4: East Bay, Tiverton, and Little Compton

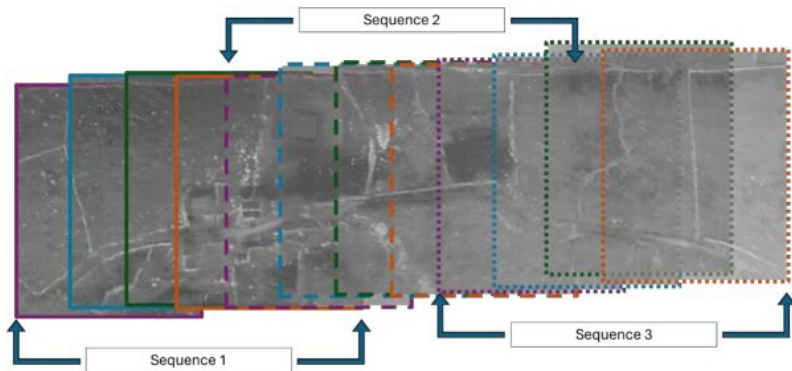


Figure 2: An example of an image sequence

Table 1: Predicted abundance and density estimates for each survey area.

Area	Predicted Abundance	Deer/Square Mile
Rhode Island	15,944	16
Mainland	13,851	16
Block Island	120	13
Prudence Island	82	14
Patience Island	21	56
Dutch Island	16	94
Jamestown	139	14
Aquidneck	441	13
Colt State Park	62	70
East Bay	459	12
Tiverton/Little Compton	852	17

What This Survey Does Not Do

It is critical to be clear about what this survey cannot provide.

- It does not give an exact count of how many deer live in Rhode Island.
- It does not replace harvest data, deer vehicle collision data, or other data used to monitor the overall herd health.
- It does not capture all deer habitats equally, especially dense urban areas like Providence.

Instead, the survey provides a snapshot in time that helps show relative differences in deer distribution across the landscape.

Conclusion

This survey should be viewed as one tool among many used to understand deer in Rhode Island. The most important takeaway is that the value of this survey lies in showing where deer are more or less common across the state—not in producing a precise statewide population number. When combined with harvest data, and long-term monitoring, aerial surveys can help wildlife biologists make better-informed decisions.

Understanding deer distribution helps guide:

- Hunting season structure and management decisions
- Habitat management
- Road safety planning
- Agricultural conflict mitigation

No single method provides all the answers. Together, multiple data sources allow DFW to manage deer responsibly while balancing public safety, ecological health, and recreational opportunity.